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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,548	01/27/2006	Gerardus P. Karman	GB030127	6152

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EXAMINER	
CERULLO, LILIANA P	
ART UNIT	**PAPER NUMBER**
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/566,548	KARMAN ET AL.	
	Examiner	Art Unit	
	LILIANA CERULLO	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

In an amendment dated 1/30/2009, the Applicant amended claims 1 and 3. Currently claims 1-16 are pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1- 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Eichenlaub in US 5,349,379 in view of Balogh in US 2003/0058209.

3. Regarding **claim 1**, Eichenlaub teaches a display device comprising a light source (Fig. 2, Lamps 10) and an array of light intensity modulators (Fig. 2, LCD 18, where the modulators are pixels of the LCD) for modulating light from the light source (col. 3 lines 32-39 where the LCD acts as a transmissive light valve display, therefore teaching the LCD to modulate light for the purpose of displaying an image),

wherein the light source is configured for operation as a single broad light source (even diffuse illumination of col. 4 lines 12-16) or a plurality of narrow light lines (light line illumination of col. 4 lines 12-16) , spaced in a spacing direction (horizontal direction of lamps 10 in Fig. 2), and

the light source and the array are arranged such that each modulator (Fig. 1, LCD pixels 4) is significantly illuminated by only one light line (Fig. 1, light line 3, and as shown the middle pixels 4 are significantly illuminated by light line 3. Also, col. 3 lines 37-39 disclose that there is one light line for every pair of pixel columns, thus teaching each of modulator in the pair of pixel of columns significantly illuminated by only the light line assigned to that pair of pixels), and

a string of modulators (Fig. 5, a horizontal string of pixels of LCD 1) which are in parallel to said spacing direction (Fig. 5, diffuser 202, which includes light lines 32 and 33, and is shown parallel to LCD1), is illuminated by each light line (as shown in Fig. 1, light lines 3 are illuminating a group of pixels 4,).

Although, Eichenlaub teaches the concept of illuminating with narrow lights (light lines illumination of col. 4 lines 12-16), Eichenlaub does not expressly teach the light source to operate as a plurality of narrow light sources.

However, Balogh teaches a 3D display where the light emitting surface is an OLED (Balogh, para. 35). It would have been obvious to one of ordinary skill in the art at the time of the invention, to use an OLED backlight in Eichenlaub's display in order to achieve high brightness (Balogh, para. 124 lines 1-5). Furthermore, by using an OLED backlight in Eichenlaub's display, Eichenlaub's light line illumination would be accomplished by lighting only one of a plurality of narrow light sources (where a narrow light source is a light line formed by a plurality of LEDs).

4. Regarding **claim 2**, Eichenlaub in view of Balogh teach wherein the narrow light sources (Eichenlaub's light line formed by a plurality of Balogh's LEDs) are elongate and aligned substantially perpendicular to the spacing direction (Eichenlaub , Fig. 5, where the spacing direction is the horizontal direction, and as shown the light lines 32 and 33 are elongated and aligned substantially in the vertical direction, hence perpendicular to the spacing direction).

5. Regarding **claim 3**, Eichenlaub teaches wherein the light source has a light emitting face which is substantially coextensive with and plane parallel to the array (Eichenlaub ,Fig. 1, illuminating device 2 is shown parallel and coextensive to LCD pixels 4).

6. Regarding **claim 4**, Eichenlaub teaches wherein the array comprises an array of pixels of a liquid crystal display (Eichenlaub , Fig. 1, LCD pixels 4 and col. 3 lines 33-37).

7. Regarding **claim 5**, Eichenlaub in view of Balogh teach the light source comprising an organic light emitting diode structure (Balogh, para. 35).

8. Regarding **claim 6**, Eichenlaub in view of Balogh teach wherein the light source (Balogh's LEDs in Eichenlaub's backlight illumination) comprises alternating thick and thin spaces between independently controlled light lines (Eichenlaub, Fig. 5 and col. 6

lines 59-65, space between lines 32 and 33). Eichenlaub fails to teach the light lines to be electrodes. However, as explained for claim 1, it would have been obvious to one of ordinary skill in the art to use an OLED backlight in Eichenlaub's display, and by doing so, the light emitting lines 32 and 33 would be light emitting diode electrodes.

9. Regarding **claim 7**, Eichenlaub in view of Balogh teach wherein said electrodes are arranged in a two dimensional grid having a plurality of rows and columns (Balogh, Fig. 15, nxm array of light sources S).

10. Regarding **claim 8**, Eichenlaub in view of Balogh teach the light source comprises thin, side-by-side, parallel, independently controllable control electrodes (Balogh, Figs. 15 and 16, array of light sources S).

11. Regarding **claim 9**, Eichenlaub in view of Balogh teach wherein the pixels of the liquid crystal display are arranged in rows and columns (Balogh, Fig. 19 pixels P of screen 20) and the control electrodes (Balogh, Fig. 19, array of LEDs in source light 10) are skewed relative to said pixel columns (as shown in Fig. 1 and 2, where the source light S and the center of the pixels P are skewed. Also, paras. 78-79 explains that the distance between light sources Xs and the distance between pixels Xp is not the same, and consequently the control electrodes are skewed relative to the screen pixels).

12. Regarding **claim 10**, Eichenlaub in view of Balogh teach wherein the light source comprises a two-dimensional array of independently controllable light emitting regions (Balogh, Fig. 15, light source 10 with nxm LEDs in Eichenlaub backlight illumination) and a control circuit configured for controlling said regions in dependence on data representing an image to be displayed (Balogh, para. 35 where it is explained that the *each* LED can be controlled to generate an *image*).

13. Regarding **claim 11**, Eichenlaub in view of Balogh teach wherein said regions emit different coloured light (Balogh, para. 35, RGB).

14. Regarding **claim 12**, Eichenlaub in view of Balogh teach wherein said regions form a repeating pattern of red, green and blue emitters (Balogh, Fig. 9).

15. Regarding **claim 13**, Eichenlaub in view of Balogh teach wherein the control circuit is configured for controlling the intensity of the light emitted by said regions in dependence on data representing the local brightness of the image to be displayed (Balogh, para. 35, where the image is generated by control of the LEDs, and para. 124, where the LEDs frequency is increased to compensate for low resolution of the LED array selected to achieve high brightness, consequently teaching the LED intensity being controlled).

16. Regarding **claim 14**, Eichenlaub in view of Balogh teach a 3D display wherein the length of each of said strings (where the string is a string of modulators per claim 1; and Balogh teaches a distance IsXp of paras. 81-82 and Fig. 2, which is the distance between pixels Xp by the number of pixels in the string Is) is substantially the same as the spacing between its illuminating narrow source and a neighboring narrow source thereof (Balogh, distance Xs of paras. 81-82 and Fig. 2. Para. 81 explains that if Is=2, which is the number of pixels in the string is 2, then the total length of the string is 2Xp, and the spacing between the light sources is Xs=2Xp). Thus, it would also have been obvious to one of ordinary skill in the art at the time of the invention, to use the spacing of light sources with respect to pixels taught by Balogh in Eichenlaub's display in order to reduce the number of necessary light sources (as taught by Balogh in para. 81).

17. Regarding **claim 15**, Eichenlaub in view of Balogh teach wherein the control circuit is configured for energizing a first set of said control electrodes to produce a 3D image and subsequently energizing a second set of said control electrodes to produce 3D image (Eichenlaub, col 4 lines 12-16 and col. 9 lines 19-46 explain that even illumination is used for 2D, and light line illumination is used for 3D; and as explained above for claim 1, it would have been obvious to one of ordinary skill in the art at the time of the invention to use OLEDs as the backlight of Eichenlaub's display, and therefore, achieve even illumination by energizing all control electrodes to produce a 2D image, and to energize only some line of electrodes to product a 3D image).

18. Regarding **claim 16**, Eichenlaub teaches an electronic apparatus including a display device according to claim 1 (Eichenlaub , auto stereoscopic display device of col. 1 lines 13-17).

Response to Arguments

19. Applicant's arguments filed 1/30/2009 have been fully considered but they are not persuasive.

On page 8 of the Remarks, the Applicants argue that both Eichenlaub (col. 3, lines 37-39) and Balogh (abstract) teach each pixel illuminated by a plurality of light sources, rather than one source.

The examiner must respectfully disagree, while true that Eichenlaub in view of Balogh do not teach each pixel illuminated by only a single LED, this limitation is not required in the claims; and a narrow light source can be a narrow light line formed of a plurality of LEDs, as the examiner interpreted for claim 1.

Eichenlaub col. 3 lines 37-39 teach one light line (See Fig. 1, light line 3) for every pair of pixel columns (See Fig. 4, pixel columns 4); thus Eichenlaub discloses that each pixel belonging to that pair of pixel columns is illuminated by only the one light line. Also, recall that Balogh teaches a 3D display where the light source is an OLED backlight (Balogh, para. 35). Therefore, upon combination, a narrow light source can be a light line (as taught by Eichenlaub) formed by a plurality of LEDs (as taught by Balogh), and consequently each pixel is significantly illuminated by only one of said narrow sources, where a narrow source is a light line formed by a plurality of LEDs.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LILIANA CERULLO whose telephone number is (571)270-5882. The examiner can normally be reached on Monday to Thursday 8AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on 571-272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. C./
Examiner, Art Unit 2629

/Amr Awad/
Supervisory Patent Examiner, Art Unit 2629